Claims

1. Device (D) for simulating the real world, capable of being implanted in a computer (C) contrived to support in multi-task mode programming by activated objects representing systems to be simulated, characterised in that it comprises a software simulating by objects the shared evolution of at least some of the activated objects, comprising:
    -   state objects each comprising at least one spatial and/or time data item and/or at least one property data item, defining a current state,
    -   interaction objects each containing the designation of at least one of the said state objects and of at least one function applicable to at least one of these state objects, and defining at each instant the topology of the system being simulated,
    -   a simulation manager capable of operating by sequences on a selection of interaction objects and of activating each interaction object once only with each sequence, according to an order varying in an at least partly random manner from one sequence to the next, so as to apply each of its functions to the current state of each state object which it defines in order to evolve its state to a new current state.

2. Device according to claim 1, characterised in that the simulation software comprises internal interaction objects, each capable of containing the designation of a single state object and at least one function applicable to this state object, and mutual interaction objects, each capable of containing the designation of at least two state objects and at least one function applicable to property data of these designated state objects.

3. Device according to either of claims 1 or 2, characterised in that the simulation software is contrived to modify at least some of the functions according to at least one property data item of at least one associated state object.

4. Device according to one of claims 1 to 3, characterised in that the simulation software is contrived to select at least some of the functions according to at least one property data item of at least one associated state object.

5. Device according to one of claims 1 to 4, characterised in that at least some of the state objects comprise a property data item representing an intensive variable.

6. Device according to one of claims 1 to 5, characterised in that at least some of the interaction objects have a function bringing about an extensive or intensive variable.

7. Device according to one of the preceding claims, characterised in that at least some of the state objects comprise state sub-objects.

8. Device according to claim 7, characterised in that at least some of the state objects comprise interaction sub-objects operating on the said state sub-objects.

9. Device according to one of the preceding claims, characterised in that the simulation software comprises classes of objects defining structures of state objects and of interaction objects, the state objects and interaction objects being derived from these classes by instancing.

10. Device according to one of the preceding claims, characterised in that the simulation software comprises a scheduler capable of operating according to one of two modes selected from a real-time mode, in which it operates according to a selected frequency, and a virtual-time mode in which it operates periodically but for durations which vary from one period to another.